

Access DB# 129288**SEARCH REQUEST FORM**

Scientific and Technical Information Center

Requester's Full Name: Prunz, WC Examiner #: 69332 Date: 8/6/04
Art Unit: 1711 Phone Number 302-681 Serial Number: 603,844
Mail Box and Bldg/Room Location: 6D71 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc. if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

SCIENTIFIC REFERENCE BR
Sci. & Tech. Info. Cntr

AUG 9

Title of Invention: _____

Inventors (please provide full names): _____

Pat. & T.M. Office

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Formula (E) of Law 1. Sharks.

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| | Type of Search | Vendors and cost where applicable |
|------------------------------------|-----------------------|-----------------------------------|
| Searcher: <u>EL</u> | NA Sequence (#) _____ | STN _____ |
| Searcher Phone #: _____ | AA Sequence (#) _____ | Dialog _____ |
| Searcher Location: _____ | Structure (#) _____ | Questel/Orbit _____ |
| Date Searcher Picked Up: _____ | Bibliographic _____ | Dr.Link _____ |
| Date Completed: <u>8-11-04</u> | Litigation _____ | Lexis/Nexis _____ |
| Searcher Prep & Review Time: _____ | Fulltext _____ | Sequence Systems _____ |
| Clerical Prep Time: _____ | Patent Family _____ | WWW/Internet _____ |
| Online Time: _____ | Other _____ | Other (specify) _____ |

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 FILE 'REGISTRY' ENTERED AT 09:32:03 ON 11 AUG 2004
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FILE 'REGISTRY' ENTERED AT 09:29:22 ON 11 AUG 2004
 ACT TRU844/Q

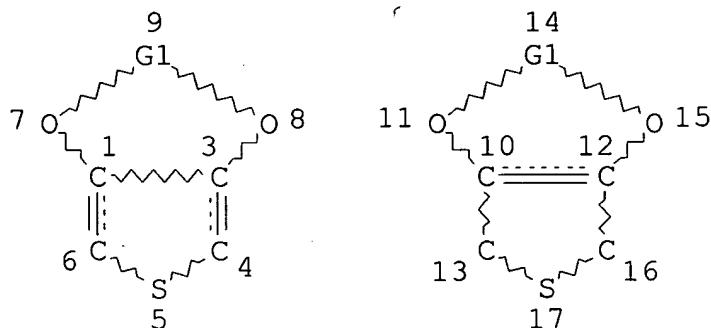
L1 STR
 L2 0 S L1
 L3 13 S L1 FUL
 DEL TRU844/Q
 SAV L3 TRU844/A

FILE 'CAOLD' ENTERED AT 09:31:35 ON 11 AUG 2004
 L4 0 S L3

FILE 'ZCAPLUS' ENTERED AT 09:31:45 ON 11 AUG 2004
 L5 4 S L3

FILE 'REGISTRY' ENTERED AT 09:32:03 ON 11 AUG 2004

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 L1 STR



REP G1=(1-4) C
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 16

STEREO ATTRIBUTES: NONE
L3 13 SEA FILE=REGISTRY SSS FUL L1

100.0% PROCESSED 1830 ITERATIONS
SEARCH TIME: 00.00.01

13 ANSWERS

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FILE 'ZCAPLUS' ENTERED AT 09:32:16 ON 11 AUG 2004
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=> d 15 1-4 ibib abs hitstr hitrn

L5 ANSWER 1 OF 4 ZCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:485814 ZCAPLUS
DOCUMENT NUMBER: 141:38620
TITLE: Preparation of 2,2'-di-(3,4-alkylenedioxythiophene) derivatives by dehydration of dihydrothiophenes.
INVENTOR(S): Reuter, Knud
PATENT ASSIGNEE(S): H.C. Starck GmbH, Germany
SOURCE: Eur. Pat. Appl., 26 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|------------------|----------|
| EP 1428827 | A1 | 20040616 | EP 2003-27357 | 20031127 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK | | | | |
| DE 10257539 | A1 | 20040701 | DE 2002-10257539 | |

US 2004122239

A1

20040624

US 2003-727736

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04

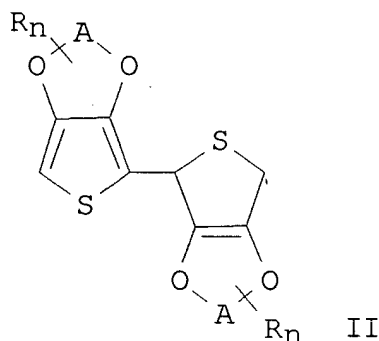
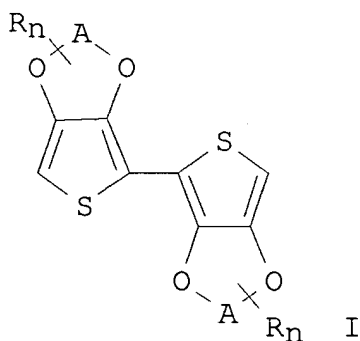
PRIORITY APPLN. INFO.:

DE 2002-10257539

A

200212
10

GI

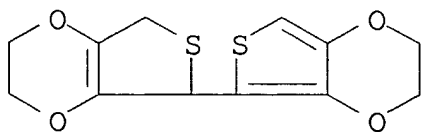


AB Title compds. [I; A = C2-4 alkylene; R = (substituted) alkyl, cycloalkyl, aryl, hydroxyalkyl, OH; n = 0-8], were prepd. by treatment of the corresponding dihydro derivs. (II; variables as above) with a dehydrating agent. Thus, II (A = CH₂CH₂; R = H) (prepn. given) was refluxed 10 h with chloranil in xylene to give 63% 2,2'-di-(3,4-ethylenedioxythiophene).

IT **639092-30-1P 639807-56-0P 704897-87-0P**
(prepn. of di(alkylenedioxythiophene) derivs. by dehydration of dihydrothiophenes)

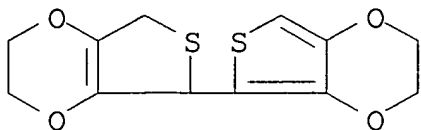
RN 639092-30-1 ZCAPLUS

CN 5,5'-Bithieno[3,4-b]-1,4-dioxin, 2,2',3,3',5,7-hexahydro- (9CI) (CA INDEX NAME)



RN 639807-56-0 ZCAPLUS

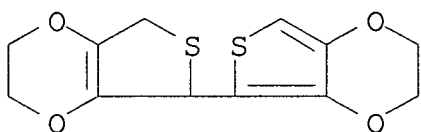
CN 5,5'-Bithieno[3,4-b]-1,4-dioxin, 2,2',3,3',5,7-hexahydro-2,2' (2,3'-,2',3 or 3,3')-dimethyl- (9CI) (CA INDEX NAME)



2 (D1-Me)

RN 704897-87-0 ZCAPLUS

CN [5,5'-Bithieno[3,4-b]-1,4-dioxin]-?,?'-dimethanol, 2,2',3,3'-tetrahydro- (9CI) (CA INDEX NAME)



2 [D1-CH₂-OH]

IT 639092-30-1P 639807-56-0P 704897-87-0P

(prepn. of di(alkylenedioxythiophene) derivs. by dehydration of dihydrothiophenes)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 4 ZCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:5184 ZCAPLUS

DOCUMENT NUMBER: 140:77585

TITLE: Manufacture of alkylenedioxythiophene dimers and trimers as precursors for conductive polymers
INVENTOR(S): Reuter, Knud; Nikanorov, Valery A.; Bazhenov, Vassily M.

PATENT ASSIGNEE(S): H.C. Starck Gmbh, Germany

SOURCE: Eur. Pat. Appl., 21 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. ----- | KIND ---- | DATE ----- | APPLICATION NO. ----- | DATE |
|---|--------------|------------------|--------------------------|-------------------|
| EP 1375560 | A1 | 20040102 | EP 2003-13779 | 200306 18 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK | | | | |
| DE 10229218 | A1 | 20040122 | DE 2002-10229218 | 200206 28 |
| US 2004031951 | A1 | 20040219 | US 2003-603844 | 200306 25 |
| JP 2004035555 | A2 | 20040205 | JP 2003-188548 | 200306 30 |
| PRIORITY APPLN. INFO.: | | | DE 2002-10229218 | A 200206 28 |
| OTHER SOURCE(S): | | MARPAT 140:77585 | | |
| GI | | | | |

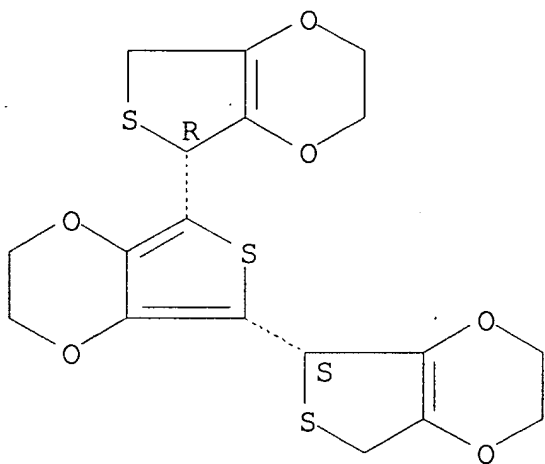
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The alkylenedioxythiophene dimers and trimers [I; A = (un)substituted C1-4 alkylene; R = (un)substituted C1-18 alkyl, (un)substituted C5-12 cycloalkyl, (un)substituted C6-14 aryl, etc.; n = 0, 1; x = 0-8], precursors for manuf. of neutral or cationic polythiophenes (II; m = 2-200; A, R, x as above), were manufd. by dimerization and trimerization of alkylenedioxythiophenes (III; A, R, x as above) in the presence of Lewis acids and/or protic acids as catalysts. For example, stirring a soln. of 2 mmol ethylene-3,4-dioxythiophene (EDT) in 1.5 mL CH₂Cl₂ with 0.036 mmol BF₃·OEt₂ (CH₂Cl₂ soln.) at 0° for 4 h under Ar gave 16% racemic EDT dimer and 6% EDT trimer (mixt. of stereoisomers).

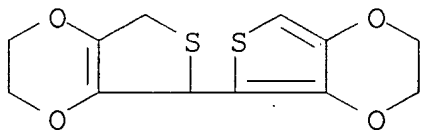
IT 639092-32-3P 639807-56-0P 639807-57-1P
 639807-58-2P 639807-59-3P
 (manuf. of dimers and trimers from alkylenedioxythiophenes)

RN 639092-32-3 ZCAPLUS
 CN 5,5':7',5''-Terthieno[3,4-b]-1,4-dioxin,
 2,2',2'',3,3',3'',5,5'',7,7''-decahydro-, (5R,5''S)- (9CI) (CA
 INDEX NAME)

Absolute stereochemistry.

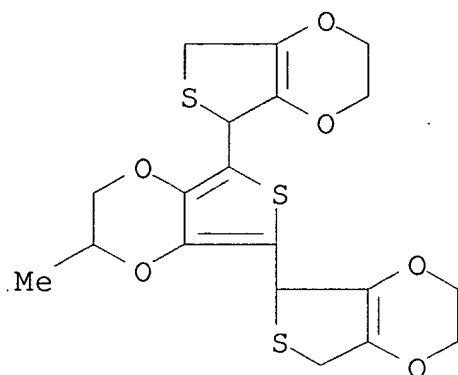


RN 639807-56-0 ZCAPLUS
 CN 5,5'-Bithieno[3,4-b]-1,4-dioxin, 2,2',3,3',5,7-hexahydro-2,2'(2,3'-
 ,2',3 or 3,3')-dimethyl- (9CI) (CA INDEX NAME)



2 (D1-Me)

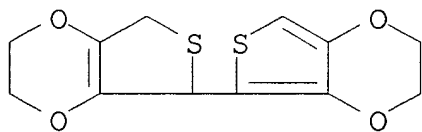
RN 639807-57-1 ZCAPLUS
 CN 5,5':7',5''-Terthieno[3,4-b]-1,4-dioxin,
 2,2',2'',3,3',3'',5,5'',7,7''-decahydro-2,2',2''(2,2',3''-,2,3',3''
 or 2',3,3'')-trimethyl- (9CI) (CA INDEX NAME)



2 (D1-Me)

RN 639807-58-2 ZCAPLUS

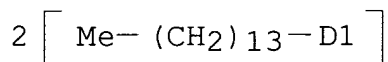
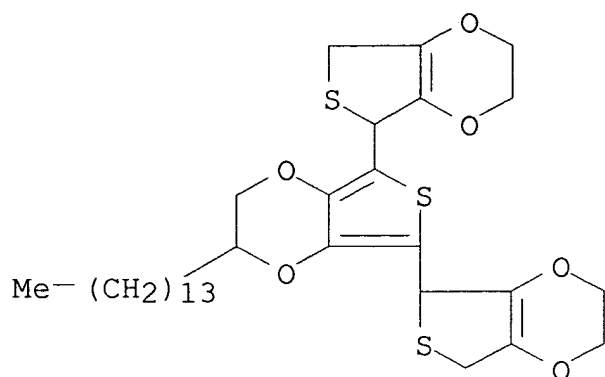
CN 5,5'-Bithieno[3,4-b]-1,4-dioxin, 2,2',3,3',5,7-hexahydro-2,2' (2,3'-,2',3 or 3,3')-ditetradecyl- (9CI) (CA INDEX NAME)



2 [Me- (CH₂)₁₃-D1]

RN 639807-59-3 ZCAPLUS

CN 5,5':7',5''-Terthieno[3,4-b]-1,4-dioxin,
2,2',2'',3,3',3'',5,5'',7,7''-decahydro-2,2',2'' (2,2',3''-,2,3',3''
or 2',3,3'')-tritetradecyl- (9CI) (CA INDEX NAME)

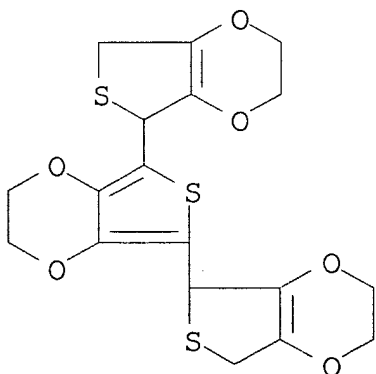


IT 639092-31-2P

(mixt. of isomers; manuf. of dimers and trimers from
alkylenedioxythiophenes)

RN 639092-31-2 ZCAPLUS

CN 5,5':7',5''-Terthieno[3,4-b]-1,4-dioxin,
2,2',2'',3,3',3'',5,5'',7,7''-decahydro- (9CI) (CA INDEX NAME)

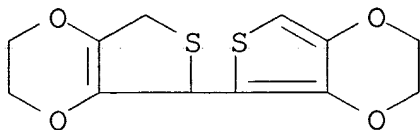


IT 639092-30-1P

(racemate; manuf. of dimers and trimers from
alkylenedioxythiophenes)

RN 639092-30-1 ZCAPLUS

CN 5,5'-Bithieno[3,4-b]-1,4-dioxin, 2,2',3,3',5,7-hexahydro- (9CI) (CA
INDEX NAME)



IT 639092-32-3P 639807-56-0P 639807-57-1P

639807-58-2P 639807-59-3P

(manuf. of dimers and trimers from alkylenedioxythiophenes)

IT 639092-31-2P

(mixt. of isomers; manuf. of dimers and trimers from
alkylenedioxythiophenes)

IT 639092-30-1P

(racemate; manuf. of dimers and trimers from
alkylenedioxythiophenes)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN
THE RE FORMAT

L5 ANSWER 3 OF 4 ZCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:797819 ZCAPLUS

DOCUMENT NUMBER: 140:5033

TITLE: Thiaporphyrins with one, two and four
unsubstituted meso-carbons: Synthesis and
functionalization

AUTHOR(S): Agarwal, Neeraj; Hung, C.-H.; Ravikanth, M.

CORPORATE SOURCE: Department of Chemistry, Indian Institute of
Technology, Bombay, 400076, India

SOURCE: European Journal of Organic Chemistry (2003),
(19), 3730-3734

CODEN: EJOCFK; ISSN: 1434-193X

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 140:5033

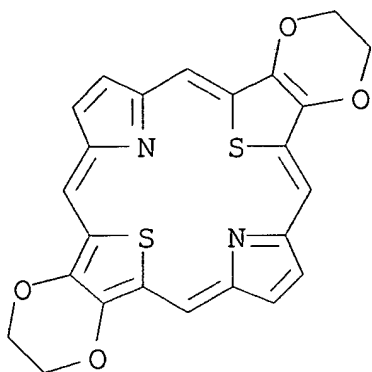
AB Thiaporphyrins with one, two and four unsubstituted meso carbons
were synthesized from easily available thiophene diols. The
reactivity at these carbons was demonstrated by carrying out series
of reactions and some very useful functional groups were introduced.
Crystal structure of one product was also reported.

IT 626253-99-4P

(prepn. and functionalization of thiaporphyrins with one, two and
four unsubstituted meso-carbons)

RN 626253-99-4 ZCAPLUS

CN 5,24:12,17-Diepthio-7,10:22,19-dinitrilocycloeicosa[1,2-b:11,12-
b']bis[1,4]dioxin, 2,3,14,15-tetrahydro- (9CI) (CA INDEX NAME)



IT 626253-99-4P

(prepn. and functionalization of thiaporphyrins with one, two and four unsubstituted meso-carbons)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L5 ANSWER 4 OF 4 ZCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:434944 ZCAPLUS

DOCUMENT NUMBER: 137:232315

TITLE: Optical and redox properties of a series of
3,4-ethylenedioxythiophene oligomersAUTHOR(S): Apperloo, Joke J.; Groenendaal, L. "Bert";
Verheyen, Hilde; Jayakannan, Manickam; Janssen,
Rene A. J.; Dkhissi, Ahmed; Beljonne, David;
Lazzaroni, Roberto; Bredas, Jean-LucCORPORATE SOURCE: Laboratory for Macromolecular and Organic
Chemistry, Eindhoven University of Technology,
Eindhoven, 5600 MB, Neth.SOURCE: Chemistry--A European Journal (2002), 8(10),
2384-2396

CODEN: CEUJED; ISSN: 0947-6539

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 137:232315

AB The optical and redox properties of a series of 3,4-
ethylenedioxythiophene oligomers (EDOTn, n = 1-4) and their
 β,β' -unsubstituted analogs (Tn, n = 1-4) are described.
Both series are end capped with Ph groups to prevent irreversible
 α -coupling reactions during oxidative doping. Absorption and
fluorescence spectra of both series reveal a significantly higher
degree of intrachain conformational order in the EDOTn oligomers.
Oxidn. potentials (EPA1 and EPA2) detd. by cyclic voltammetry reveal
that those of EDOTn are significantly lower than the corresponding

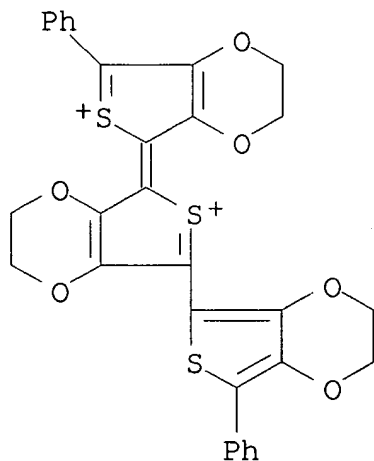
Tn oligomers as a consequence of the electron-donating 3,4-ethylenedioxy substitution. Linear fits of EPA1 and EPA2 vs. the reciprocal no. of double bonds reveal significantly steeper slopes for the EDOTn than for the Tn oligomers. This could indicate a more effective conjugation for the EDOTn series, confirmed by the fact that coalescence of EPA1 and EPA2 is reached already at relatively short chain lengths (≈ 5 EDOT units) in contrast to the Tn series (> 10 thiophene units). The stepwise chem. oxidn. of the EDOTn and Tn oligomers in soln. was carried out to obtain radical cations and dications. The energies of the optical transitions of the radical cations and dications as detd. by UV/Vis/NIR spectroscopy were similar for the two series. These spectroscopic observations are consistent with quantum-chem. calcns. performed on the singly charged mols. Cooling solns. contg. T2 \bullet^+ , T3 \bullet^+ , EDOT2 \bullet^+ , and EDOT3 \bullet^+ revealed the reversible formation of dimers, albeit with a some-what different tendency, expressed in the values for the dimerization enthalpy.

IT 459409-86-0

(prepn. and optical and redox properties of a series of 3,4-ethylenedioxythiophene oligomers)

RN 459409-86-0 ZCAPLUS

CN 5H-1,4-Dioxino[2,3-c]thiolium, 5-(2,3-dihydro-7-phenyl-5H-1,4-dioxino[2,3-c]thiolium-5-ylidene)-7-(2,3-dihydro-7-phenylthieno[3,4-b]-1,4-dioxin-5-yl)- (9CI) (CA INDEX NAME)



IT 459409-86-0

(prepn. and optical and redox properties of a series of 3,4-ethylenedioxythiophene oligomers)

REFERENCE COUNT: 81 THERE ARE 81 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

Truong 10/603,844

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